

No.

200300130

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Monsanto Technology LLC

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT; THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN PRODUCING A HYBRID OR PLANT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT: (84 STAT. 1507, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'0049431'



In Testimony Whereof, I have herunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this nineteenth day of September, in the year two thousand and three.

Attest:

Mark Wermeling
Acting Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Ann M. ...
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

1. NAME OF OWNER <div style="text-align: center;">Monsanto Technology LLC</div>		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME <div style="text-align: center;">DBL3702BOX</div>		3. VARIETY NAME <div style="text-align: center;">0049431</div>	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) <div style="text-align: center;">634 E. Lincoln Way Ames, IA 50010</div>		5. TELEPHONE (include area code) <div style="text-align: center;">(515) 232-7170</div>		<div style="border: 1px solid black; padding: 5px;"> FOR OFFICIAL USE ONLY PVPO NUMBER <div style="font-size: 2em; font-weight: bold;">20030013</div> FILING DATE <div style="font-size: 1.5em;">2/4/2003</div> </div>	
		6. FAX (include area code) <div style="text-align: center;">(515) 232-6905</div>			
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) <div style="text-align: center;">Limited Liability Company</div>		8. IF INCORPORATED, GIVE STATE OF INCORPORATION 		9. DATE OF INCORPORATION 	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers) <div style="text-align: center;">Donald Steffen 634 E. Lincoln Way Ames, IA 50010</div>					<div style="border: 1px solid black; padding: 5px;"> FILING AND EXAMINATION FEES: <div style="font-size: 1.2em;">\$ 2,705.00</div> DATE <div style="font-size: 1.2em;">2/4/2003</div> CERTIFICATION FEE: <div style="font-size: 1.2em;">\$ 432.00</div> DATE <div style="font-size: 1.2em;">9/12/2003</div> </div>
11. TELEPHONE (Include area code) <div style="text-align: center;">(515) 956-3002</div>		12. FAX (Include area code) <div style="text-align: center;">(515) 232-6905</div>		13. E-MAIL <div style="text-align: center;">donald.e.steffen@monsanto.com</div>	
14. CROP KIND (Common Name) <div style="text-align: center;">Soybean</div>		15. GENUS AND SPECIES NAME OF CROP <div style="text-align: center;">Glycine max (L.) Merr.</div>		16. FAMILY NAME (Botanical) <div style="text-align: center;">Fabaceae (Leguminosae)</div>	
17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input type="checkbox"/> NO		18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse) a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$2,705), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)			
19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? See Section 83(a) of the Plant Variety Protection Act <input type="checkbox"/> YES (If "yes", answer items 20 and 21 below) <input checked="" type="checkbox"/> NO (If "no," go to item 22)		20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? IF YES, WHICH CLASSES? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED			
21. DOES THE OWNER SPECIFY THAT THE CLASSES BE LIMITED AS TO NUMBER OF GENERATIONS? IF YES, SPECIFY THE NUMBER 1, 2, 3, etc. <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED (If additional explanation is necessary, please use the space indicated on the reverse.)		22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)			
23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)		24. The owners declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate. The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.			
SIGNATURE OF OWNER NAME (Please print or type) <div style="text-align: center;">Donald Steffen</div>		SIGNATURE OF OWNER NAME (Please print or type) <div style="text-align: center;">Donald Steffen</div>			
CAPACITY OR TITLE <div style="text-align: center;">Oilseeds IP/Reg. Affairs Manager</div>		DATE <div style="text-align: center;">31 Jan 2003</div>		CAPACITY OR TITLE 	
DATE 		DATE 			

INSTRUCTIONS

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), ALL of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to reproduce the variety, or for tuber reproduced varieties verification that a viable (*in the sense that it will reproduce an entire plant*) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$2,705 (\$320 filing fee and \$2,385 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfilled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 500, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. **Retain one copy for your files.** All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$320 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office

Telephone: (301) 504-5518

FAX: (301) 504-5291

Homepage: <http://www.ams.usda.gov/science/pvp.htm>

ITEM

- 18a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) evidence of uniformity and stability; and (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 18b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
- (1) identify these varieties and state all differences objectively;
 - (2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
 - (3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 18c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 18d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 18e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
19. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
21. See Section 83 of the Act for the Contents and Term of Plant Variety Protection.
22. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
23. See Section 5.5 of the Act for instructions on claiming the benefit of an earlier filing date.

21. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)

22. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

23. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

U.S. Patent No. 5,776,760. Issue Date: July 7, 1998. Assignee: Monsanto Company. Patent Application No. 484,274.

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

To avoid conflict with other variety names in use, the applicant must check the variety names proposed by contacting: Seed Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center-East, Beltsville, MD 20705. Telephone: (301) 504-8089. <http://www.ams.usda.gov/lsg/seed/lsg-sd.htm>

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number for this collection of information is (0581-0055). The time required to complete this information collection is estimated to average 1.4 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact the USDA's TARGET Center at 202-720-2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

S&T-470 (04-01) designed by the Plant Variety Protection Office with WordPerfect 6.0a. Replaces STD-470 (02-99) which is obsolete.

MONSANTO TECHNOLOGY LLC
PVP APPLICATION - 0049431

EXHIBIT A

ORIGIN AND BREEDING HISTORY

1997 - Final cross was made in 1997 at Isabela, Puerto Rico.

Parentage: A3559/AG3302

Source of glyphosate tolerance is AG3302 = A3244/3/A3304*2//A3237*4/40-3-2

1997 - F1 generation was grown at Isabela, Puerto Rico and advanced using modified single seed descent.

1998 - F2 generation was grown at Isabela, Puerto Rico and advanced using modified single seed descent.

1998 - F3 bulk populations were grown at Stonington, Illinois and single plants pulled.

1999 - F3 derived F4 plants were grown at Bloomington, Illinois in progeny rows and variety 0049431 was selected.

(Selection criteria included lodging resistance, general plant disease reaction to SCN, BSR, white mold, and PRR, reaction to glyphosate herbicide, overall plant performance 7/23/2003 bt per appl. earth's request)

2000 - F3:5 breeder seed was grown at Stonington, Illinois for progeny row and for yield tests at 5 locations.

Variety 0049431 was observed to be uniform and stable for the characteristics described within this application based on our observations since 2000 and, henceforth, to present. No variants were observed during this time.

Variety 0049431 has continued to be grown in yield tests at 10 locations in 2001 and 29 locations in 2002 for comparison against other varieties to determine how it would be used in our marketing program.

MONSANTO TECHNOLOGY LLC
PVP APPLICATION - 0049431

EXHIBIT B

NOVELTY STATEMENT

To our knowledge, the soybean varieties that closely resemble 0049431 are SD82997, and SD92955:

1. Pod Wall color	0049431	- Brown
	SN79794	- Tan Brown (corrected per applicant's request on 7/9/2003).
	SD92955	- Tan
2. Hilum color	0049431	- Imperfect Black
	SN79794	- Imperfect Black
	SD92955	- Buff
3. STS (Als) Gene (Tolerance to sulfonylurea herbicides)	0049431	- Present
	SN79794	- Absent
	SD92955	- Absent

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this collection of information is (0581-0055). The time required to complete this information collection is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact the USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

**U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705**

**EXHIBIT C
(Soybean)**

**OBJECTIVE DESCRIPTION OF VARIETY
SOYBEAN (*Glycine max* (L.) Merr.)**

NAME OF APPLICANT(S) Monsanto Technology LLC	FOR OFFICIAL USE ONLY			
ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) 634 E. Lincoln Way Ames, IA 50010	<table border="1"> <tr> <td data-bbox="1136 661 1575 735">PVPO NUMBER 200300130</td> </tr> <tr> <td data-bbox="1136 735 1575 808">VARIETY NAME 0049431</td> </tr> <tr> <td data-bbox="1136 808 1575 882">TEMPORARY OR EXPERIMENTAL DESIGNATION DBL3702B0X</td> </tr> </table>	PVPO NUMBER 200300130	VARIETY NAME 0049431	TEMPORARY OR EXPERIMENTAL DESIGNATION DBL3702B0X
PVPO NUMBER 200300130				
VARIETY NAME 0049431				
TEMPORARY OR EXPERIMENTAL DESIGNATION DBL3702B0X				

PLEASE READ ALL INSTRUCTIONS CAREFULLY: Place the appropriate number that describes the varietal character of this variety in the boxes below.

Place a zero in the first box (e.g. **0 9 9** or **0 9**) when number is either 99 or less or 9 or less respectively. Data for quantitative

plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal

Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used:

Please answer all questions for your variety; lack of response may delay progress of your application.

A. MORPHOLOGY

Seed Shape:

2	1 = Spherical (L/W, L/T, and T/W ratios < 1.2) 3 = Elongate (L/T ratio > 1.2; T/W ratio < 1.2)	2 = Spherical-Flattened (L/W ratio > 1.2; L/T ratio < 1.2) 4 = Elongate-Flattened (L/T ratio > 1.2; T/W ratio > 1.2)
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Seed Coat Color:

1	1 = Yellow	2 = Green	3 = Brown	4 = Black	5 = Other (Please Specify) _____
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Seed Coat Luster:

1	1 = Dull	2 = Shiny
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Seed Size:

1	6	.	2	grams/100 seeds
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Hilum Color:

5	1 = Buff	2 = Yellow	3 = Brown	4 = Gray	5 = Imperfect Black
	6 = Black	7 = Other (Please Specify) _____			

Cotyledon Color:

1	1 = Yellow	2 = Green
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A. MORPHOLOGY (Continued)

200300130

Seed Protein Peroxidase Activity:

1 = Low 2 = High

Hypocotyl Color:

1 = Green 'Evans' or 'Davis' 2 = Green with Bronze Bands below Cotyledon 'Woodworth' or 'Tracy' 3 = Light Purple below Cotyledons 'Beeson' or 'Pickett 71' 4 = Dark Purple extending to unifoliate leaves ('Hodgson', 'Coker', or 'Hampton 266A')

Leaf Shape:

1 = Lanceolate 2 = Oval 3 = Ovate 4 = Other (Please Specify) _____

Flower Color:

1 = White 2 = Purple 3 = White with a Purple Throat

Pod Color:

1 = Tan 2 = Brown 3 = Black

Pubescence Color:

1 = Gray 2 = Brown (Tawny) 3 = Light Tawny

Plant Habit:

1 = Determinate 2 = Semi - Determinate 3 = Indeterminate 4 = Intermediate

Maturity Group:

<input type="text" value="0"/>	<input type="text" value="6"/>	1 = 000	2 = 00	3 = 0	4 = I	5 = II
		6 = III	7 = IV	8 = V	9 = VI	10 = VII
		11 = VIII	12 = IX	13 = X	14 = XI	15 = XII

Maturity Subgroup:

Please enter a value from 0 - 9

B. DISEASE REACTIONS

0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

Bacterial

Bacterial Pustule (*Xanthomonas campestris* pv. *glycines* (Nakano) Dye)

Bacterial Blight (*Pseudomonas syringae* pv. *glycinea* (Coerper) Young, Dye, & Wilkie)

Wildfire Blight (*Pseudomonas syringae* pv. *tabaci* (Wolf & Foster) Young, Dye, & Wilkie)

Fungal

Brown Spot (*Septoria glycines* Hemmi)

Frogeye Leaf Spot (*Cercospora sojina* Hara)

0	race 1	0	race 2
0	race 5	0	race 6
		0	race 3
			Other (Please Specify) _____

0	Target Spot (<i>Corynespora cassiicola</i> (Berk. & Curt.) Wei)
---	--

0	Downey Mildew (<i>Peronospora trifoliorum</i> var. <i>manchurica</i> (Naum.) Syd. ex Gäum)
---	---

0	Powdery Mildew (<i>Microsphaera diffusa</i> Cke. & Pk.)
---	--

1	Brown Stem Rot (<i>Phialophora gregata</i> (Allington & Chamberlain) W. Gams.)
---	---

0	Stem Canker (<i>Diaporthe phaseolorum</i> (Cke. & Ell.) Sacc. var. <i>caulivora</i> Athow & Caldwell)
---	--

0	Pod and Stem Blight (<i>Diaporthe phaseolorum</i> (Cke. & Ell.) Sacc. var. <i>sojae</i> (Lehman) Wehm.)
---	--

0	Purple Seed Stain (<i>Cercospora kikuchii</i> (T. Matsu. & Tomoyasu) Gardener)
---	---

0	Rhizoctonia Root Rot (<i>Rhizoctonia solani</i> Kühn)
---	--

Phytophthora Root Rot (*Phytophthora megasperma* Drechs. f. sp. *glycinea* (Kuan & Erwin))

2	race 1	2	race 8	2	race 15	1	race 22
2	race 2	2	race 9	1	race 16	2	race 23
2	race 3	2	race 10	2	race 17	2	race 24
1	race 4	2	race 11	1	race 18	1	race 25
1	race 5	1	race 12	1	race 19	2	race 26
2	race 6	2	race 13	1	race 20	2	Other (Please Specify) :
2	race 7	1	race 14	2	race 21	Races 28, 29, 30, 32	

0	Bud Blight (Tobacco Ringspot Virus)
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0	Yellow Mosaic (Bean Yellow Mosaic Virus)
---	--

0	Cowpea Mosaic (Cowpea Chlorotic Virus)
---	--

0	Pod Mottle (Bean Pod Mottle Virus)
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B. DISEASE REACTIONS (Continued) 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

Seed Mottle (Soybean Mosaic Virus)

Nematode

Soybean Cyst Nematode (*Heterodera glycines* Ichinohe)

<input type="text" value="0"/> race 1	<input type="text" value="0"/> race 4	<input type="text" value="0"/> race 9
<input type="text" value="0"/> race 2	<input type="text" value="0"/> race 5	<input type="text" value="1"/> race 14 (former r. 4)
<input type="text" value="2"/> race 3	<input type="text" value="0"/> race 6	<input type="text"/> Other (Please Specify) _____

Lance Nematode (*Hoplolaimus columbus* Sher)

Southern Root Knot Nematode (*Meloidogyne incognita* (Kofoid & White) Chitwood)

Northern Root Knot Nematode (*Meloidogyne hapla* Chitwood)

Peanut Root Knot Nematode (*Meloidogyne arenaria* (Neal) Chitwood)

Reniform Nematode (*Rotylenchus reniformus* Linwood & Olivera)

Javanese Nematode (*Meloidogyne javanica* (Treub) Chitwood)

Other Nematode (Please Specify) _____

C. PHYSIOLOGICAL RESPONSES 0 = Not Tested 1 = Susceptible 2 = Resistant 3 = Tolerant

Iron Chlorosis on Calcareous Soil

Phosphorus

Boron

Aluminum

Salt

Drought

Other (Please Specify) _____

D. INSECT REACTIONS

0 = Not Tested

1 = Susceptible

2 = Resistant 3 = Tolerant

☐ 0 Mexican Bean Beetle (*Epilachna varivestis* Mulsant)☐ 0 Potato Leaf Hopper (*Empoasca fabae* (Harris))☐ Other (Please Specify) _____**E. HERBICIDE REACTIONS**

0 = Not Tested

1 = Susceptible

2 = Resistant

☐ 2 Metribuzin☐ 0 Bentazone☐ 2 Sulfonylurea☐ 2 Glyphosate☐ 1 Glufosinate☐ 0 Pendimethalin☐ Other (Please Specify) _____**F. TRANSGENIC COMPOSITION**

Has the development of the Subject Variety included the insertion or removal of genetic material? ☒ YES ☐ NO
 If yes, please complete the following information requests*. Use additional pages if necessary.

1. Please state the vector's name:
2. Please state the vector components:
3. Please describe the genetic material successfully transferred into the Subject Variety:
4. Please describe the insertion protocol:

* A literature citation(s) explaining the four information requests above may be an acceptable alternative to completion of the "Transgenic Composition" portion of this form.

U.S. Patent No. 5,776,760. Issue Date: July 7, 1998. Inventor: Barry, Gerard, and Kishore, Ganesh. Assignee: Monsanto Company. Patent Application No. 484,274.

ABSTRACT: Genes encoding a glyphosate oxidoreductase enzyme are disclosed. The genes are useful in producing transformed bacteria and plants which degrade glyphosate herbicide as well as crop plants which are tolerant to glyphosate herbicide.

G. BIOCHEMICAL MARKERS

Please describe any biochemical information here which you believe will be helpful in further describing the Subject Variety (e.g. Simple Sequence Repeats, Restriction Fragment Length Polymorphisms, Isozymic Characterization). Use additional pages if necessary.

H. COMMENTS

MONSANTO TECHNOLOGY LLC
PVP APPLICATION - 0049431

EXHIBIT D

ADDITIONAL DESCRIPTION OF INVENTION

0049431 is a late maturity group III variety with resistance to Roundup[™] herbicide. It has very high yield potential. It has superior yields to lines of similar maturity and has excellent agronomic characteristics, including lodging resistance. In tests, it has beaten Stine 3842-4 by 110 % overall, winning at 17 of 29 locations. It is adapted to the late maturity group III growing areas of Iowa, Indiana, Ohio, Kansas, Illinois, Missouri, and Pennsylvania. It has only average appearance.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

1. NAME OF APPLICANT(S) Monsanto Technology LLC	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER DBL3702B0X	3. VARIETY NAME 0049431
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country) 634 E. Lincoln Way Ames, IA 50010	5. TELEPHONE (Include area code) (515) 232-7170	6. FAX (Include area code) (515) 232-6905
7. PVPO NUMBER 200300130		

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain. ☒ YES ☐ NO

9. Is the applicant (individual or company) a U.S. National or a U.S. based company? If no, give name of country. ☒ YES ☐ NO

10. Is the applicant the original owner? ☒ YES ☐ NO If no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

☐ YES ☐ NO If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

☐ YES ☐ NO If no, give name of country

11. Additional explanation on ownership (If needed, use the reverse for extra space):

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 6 minutes per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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